

82-0995 Troubleshooting table convenience control power windows/tilting/sliding roof (ECE)

Operation no. of operation texts and work units or standard texts and flat rates:

Complaint	Possible cause	Remedy
Tilting/sliding roof or power windows do not operate when ignition key in position 1 (no voltage at fuse A or G and H)	Open circuit in wiring, convenience circuit relay faulty.	Test steps 1, 2, 9 Replace relay.
Tilting/sliding roof or power windows do not operate when driver's, front passenger's door open (no voltage at fuse A or G and H)	Open circuit in wiring, door contact switch faulty, convenience circuit relay faulty, convenience control relay faulty	Test step 1, 3, 9 Replace relay or door contact switch.
Tilting/sliding roof does not operate with sliding roof switch (voltage exists at fuse A)	Open circuit in wiring, tilting/sliding roof switch faulty, tilting/sliding roof motor faulty, tilting/sliding roof motor relay unit faulty.	Test step 4, 5 Replace switch, motor, relay unit.
Closing/lowering tilting/sliding roof does not operate	Open circuit in wiring, tilting/sliding roof switch faulty, tilting/sliding roof motor faulty, tilting/sliding roof motor relay unit faulty.	Test step 6 Replace switch, motor, relay unit.
Opening tilting/sliding roof does not operate	Open circuit in wiring, tilting/sliding roof switch faulty, tilting/sliding roof motor faulty, tilting/sliding roof motor relay unit faulty.	Test step 7 Replace switch, motor, relay unit.
Opening tilting roof does not operate	Open circuit in wiring, tilting/sliding roof switch faulty, tilting/sliding roof motor faulty, tilting/sliding roof motor relay unit faulty.	Test step 8 Replace switch, motor, relay unit.



Complaint	Possible cause	Remedy
Power windows to not operate with power window switch (voltage exists at fuse G, H)	Open circuit in wiring, power window switch faulty, power window motor faulty, convenience control unit faulty.	Test steps 9, 10, 14 Replace switch, motor, control unit.
Closed power window (front right) with power window switch does not operate	Open circuit in wiring, power window switch faulty, power window motor faulty, convenience control unit faulty.	Test steps 13, 14 Replace switch, motor, control unit.
Open power window (front right) with power window switch does not operate	Open circuit in wiring, power window switch faulty, power window motor faulty, convenience control unit faulty.	Test steps 11, 14 Replace switch, motor, control unit.
Open power window (front right) (retract control) with power window switch does not operate	Open circuit in wiring, power window switch faulty, power window motor faulty, convenience control unit faulty.	Test steps 11, 12, 14 Replace switch, motor, control unit.
Convenience control power windows/tilting/sliding roof with ignition key at driver's door, front passenger's door, trunk lid does not operate	Open circuit in wiring, 12 V at terminal 15R, or ground at door contact switch, when car parked. Lock switch of driver's door, front passenger's door, trunk lid faulty, convenience control unit faulty.	Test steps 16, 17, 18 Replace lock switch, control unit.
Increased amperage (20–40 A) briefly ($t \leq 25$ seconds) when car locked	Short circuit in wiring to terminal 31, lock switch of driver's door, front passenger's door, trunk lid faulty. Convenience control unit faulty.	Test step 15 Replace lock switch, control unit.

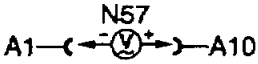
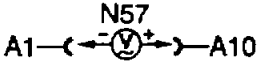
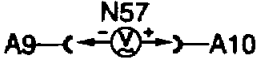
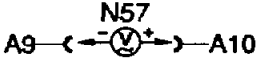
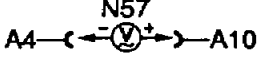
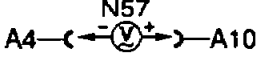


Test step	Test scope	Test connection	Operation/ Requirement	Specifi- cation	Possible cause/Remedy
1	Wiring to relay K24	5 —(← $\overset{K24}{\text{V}}^+$ →)— 3	Unplug coupling from convenience circuit relay (K24)	11–14 V	Open circuit in wiring from K24 → X4/1 from K24 → W1
2	Wiring to relay K24	5 —(← $\overset{K24}{\text{V}}^+$ →)— 4	Unplug coupling from convenience circuit relay (K24). Ignition: On	11–14 V	Fuse (F1/2) faulty Open circuit in wiring from K24 → F1/2 Specification reached: relay (K24) faulty
3	Wiring to relay K24	6 —(← $\overset{K24}{\text{V}}^+$ →)— 2	Unplug coupling from convenience circuit relay (K24). Open driver or front passenger door	11–14 V	Fuse (F1/9) faulty Open circuit in wiring from K24 → F1/9, from K24 → N57 contact E4 from N57 contact E1 → S17/3 Door contact switch (S17/3) faulty, control unit (N57) faulty. Specification reached: relay (K24) faulty.
4	Wiring to tilting/sliding roof motor (M12m1)	6 —(← $\overset{M12m1}{\text{V}}^+$ →)— 1	Unplug coupling from tilting/sliding roof motor (M12m1). Ignition: On	11–14 V	Open circuit in wiring M12m1 contact 1 → fuse (F1/A) from M12m1 contact 6 → ground (W6) Specification reached: Motor (M12m1) faulty. Relay (M12k1) faulty. Switch (S13/2) faulty.
5	Wiring to tilting/sliding roof switch (S13/2)	6 —(← $\overset{S13/2}{\text{V}}^+$ →)— 4	Unplug coupling from tilting/sliding roof switch (S13/2). Ignition: On	11–14 V	Open circuit in wiring from S13/2 → W4, from S13/2 → M12m1 Contact 1 Specification reached: Switch (S13/2) faulty.
6	Wiring from tilting/sliding roof switch (S13/2) to sliding/tilting roof motor (M12m1)	6 —(← $\overset{M12m1}{\text{V}}^+$ →)— 4	Unplug coupling from tilting/sliding roof motor (M12m1). Ignition: On Operate tilting/sliding roof switch in closed/lower direction	11–14 V	Open circuit in wiring from M12m1 contact 4 → S13/2 contact 3 Switch (S13/2) faulty. Specification reached: Motor (M12m1) faulty. Motor relay unit (M12k1) faulty.



Test step	Test scope	Test connection	Operation/ Requirement	Specifi- cation	Possible cause/Remedy
7	Wiring from tilting/sliding roof switch (S13/2) to tilting/sliding roof motor (M12m1)	M12m1 6 —(←(V)→)— 3	Unplug coupling from tilting/sliding roof motor (M12m1) Ignition: On Operate tilting/sliding roof switch in open direction.	11–14 V	Open circuit in wiring from M12m1 contact 3 → S13/2 contact 1. Switch (S13/2) faulty. Specification reached: Motor (M12m1) faulty. Motor relay unit (M12k1) faulty.
8	Wiring from tilting/sliding roof switch (S13/2) to tilting/sliding roof motor (M12m1)	M12m1 6 —(←(V)→)— 5	Unplug coupling from tilting/sliding roof motor (M12m1) Ignition: On Operate tilting/sliding roof switch in raised direction.	11–14 V	Open circuit in wiring from M12m1 contact 5 → S13/2 contact 2. Switch (S13/2) faulty. Specification reached: Motor (M12m1) faulty. Motor relay unit (M12k1) faulty.
9	Supply voltage of convenience control unit (N57)	N57 C4 —(←(V)→)— E2	Unplug coupling C and E from convenience control unit (N57)	11–14 V	Open circuit in wiring from N57 contact C4 → W6, from N57 contact E2 → X30 contact 1, from X30 contact 1 → fuse (F1/C) Specification reached: Control unit (N57) faulty
10	Supply voltage of convenience control unit (N57)	N57 A2 —(←(V)→)— A10	Unplug coupling A from convenience control unit (N57) Ignition: On	11–14 V	Open circuit in wiring from N57 contact A2 → W12, from N57 contact A10 → F1/G



Test step	Test scope	Test connection	Operation/ Requirement	Specifi- cation	Possible cause/Remedy
11	Power window switch		Unplug coupling A from convenience control unit (N57) Ignition: On	0-1 V	Cable from N57 contact A1 → S19s1 contact 4 has short circuit to terminal 31. Switch (S19s1) faulty
			Press power window switch in open direction (1st and 2nd detent).	11-14 V	Open circuit in wiring from N57 contact A1 → S19s1 contact 4, from S19s1 contact 1 → W12. Switch (S19s1) faulty
12	Power window switch		Unplug coupling A from convenience control unit (N57) Ignition: On	0-1 V	Cable from N57 contact A9 → S19s1 contact 5 has short circuit to terminal 31. Switch (S19s1) faulty
			Press power window switch in open direction (1st and 2nd detent).	11-14 V	Open circuit in wiring from N57 contact A9 → S19s1 contact 5, from S19s1 contact 1 → W12. Switch (S19s1) faulty
13	Power window switch		Unplug coupling A from convenience control unit (N57) Ignition: On	0-1 V	Cable from N57 contact A4 → S19s1 contact 3 has short circuit to terminal 31. Switch (S19s1) faulty
			Press power window switch in closed direction.	11-14 V	Open circuit in wiring from N57 contact A4 → S19s1 contact 3, from S19s1 contact 1 → W12. Switch (S19s1) faulty



Test step	Test scope	Test connection	Operation/ Requirement	Specifi- cation	Possible cause/Remedy
17	Terminal 15R to control unit	<p style="text-align: center;">N57 ← (V) → E3</p>	Unplug coupling E from convenience control unit (N57). Ignition: OFF Ignition: ON	0-1 V 11-14 V	Positive (terminal 30) exists constantly at fuse F1/C Open circuit in wiring from N57 contact E3 → X30 contact 5
18	Door contact switch	<p style="text-align: center;">N57 ← (V) → E1 ← E2</p>	Unplug coupling 9E from convenience control unit (N57). Doors closed.	0-1 V	Cable 9 from N57 contact E1 → S17/3 has short circuit to terminal 31. Door contact switch faulty.

